

WHAT IS CLAIMED IS:

1. A solution, for use as the variable transmittance medium in a single-compartment, self-erasing, solution-phase electrochromic device, which comprises:
 - (A) a solvent;
 - (B) at least one cathodic electrochromic compound which, in a voltammogram done in the solvent at room temperature, displays at least two chemically reversible reduction waves, with the first of said reductions accompanied by an increase in molar extinction coefficient at at least one wavelength in the visible range;
 - (C) at least one anodic electrochromic compound which, in a voltammogram done in the solvent at room temperature, displays at least two chemically reversible oxidation waves, with the first of said oxidations accompanied by an increase in molar extinction coefficient at at least one wavelength in the visible range; and
 - (D) if all cathodic and anodic compounds in their zero-potential equilibrium states in the solution are not ionic, an inert current-carrying electrolyte.
2. An electrochromic device, comprising a single compartment, self-erasing, solution-phase variable transmittance component that provides continuously variable transmittance over a range of transmittance as a function of the potential difference applied, and wherein the sheet resistance of a transparent electrode layer of the electrochromic device is less than 40 ohms per square.
3. An electrochromic device, comprising a single compartment, self-erasing, solution-phase, variable transmittance component, where said electrochromic device is gray-scale controllable over a range of transmittance by applying potential differences between electrode layers of the device of 0.2 to 1.4 volts.
4. An electrochromic device, comprising a single compartment, self-erasing, solution-phase variable transmittance component, where said electrochromic device provides a range of white light transmittance from greater than about 81% to about 10% or less.
5. An electrochromic device, comprising a single compartment, self-erasing, solution-phase, variable transmittance component, where said electrochromic

device provides continuously variable transmittance over a range of transmittance as a function of the potential difference applied, and wherein the electrochromic device provides a light transmittance as low as about 10% or less.

6. An electrochromic device, comprising a self-erasing variable transmittance component, where said electrochromic device provides continuously variable transmittance over a range of transmittance as a function of the potential difference applied, and wherein the sheet resistance of a transparent electrode layer of the electrochromic device is less than 40 ohms per square.

7. An electrochromic device, comprising a self-erasing variable transmittance component, where said electrochromic device is gray-scale controllable over a range of transmittance by applying potential differences between the electrode layers of the device of 0.2 to 1.4 volts.

8. An electrochromic device, comprising a self-erasing variable transmittance component, where said electrochromic device provides a range of white light transmittance from greater than about 81% to about 10% or less.

9. An electrochromic device according to any of claims 2-8, wherein said device is an electrochromic window that has an area of at least about 162 square centimeters.

10. An electrochromic device according to any of claims 2-8, wherein said transmittance is reduced from greater than about 80% to less than 10% with a potential difference of less than 1.2 volts.

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